

Amendments to the Specification

- 1) Please delete the first, unnumbered page in its entirety.
- 2) Please insert the following subtitle at page 1, below the title:
Background
- 3) Please insert the following subtitle at page 3, line 12:
Summary
- 4) Please delete the text found at page 6, lines 13 through 28.

- 5) Please add the following subtitle and text at page 6, line 13:
Brief Description of the Drawings

For a further understanding of the nature and objects for the present invention, reference should be made to the following detailed description, taken in conjunction with the accompanying drawings, in which like elements are given the same or analogous reference numbers and wherein:

- Figure 1 illustrates a graphical representation of relative changes in container weight as a function of time, as per one embodiment of the current invention;
- Figure 2 illustrates a partial view of one embodiment of the current invention, highlighting an integrated-circuit fabrication reactor, a moving container intended to be changed when it is empty, and a fixed container which acts a buffer for the plant; and
- Figure 3 illustrates an example of an operating flow chart in accordance with an illustrative embodiment of the current invention.

- 6) Please add the following subtitle, after the above-referenced paragraph:
Description of Preferred Embodiments

- 7) Please replace the paragraph at page 6, line 30, with the following:

Figure 1 shows a curve of the relative percentage change in the weight of liquid in the container (under a gas pressure as indicated above) as a function of time, which indicates that, at time $t = 0$ 7% of the initial weight of liquid in the

container remains. On the left in the figure, the curve starts at a relative time $t = 0$ with a weight value P_0 equal to 7% of the initial weight. The draining curve C for the moving drum or shuttle drum (see ~~figure~~ Figure 2) is a straight line that decreases uniformly according to the representation given in ~~figure~~ Figure 1.

- 8) Please replace the paragraph at page 7, line 20, with the following:

Because of the constant overpressure above the chemical liquid, very much greater than the pressure due to the height of the liquid in the container, there is therefore a virtually constant pressure at the end of the dip tube, which results in a curve (in ~~figure~~ Figure 1) having a constant slope down to the point 4. This point 4 is representative of the time t_3 (in ~~figure~~ Figure 1) at which the end of the dip tube is no longer entirely (completely) submerged in the liquid, which results in the propellant gas being sucked into the tube and therefore a smaller amount of chemical liquid transferred. Thus, curve C tends to decrease less quickly and at time t_4 of the next sampling it has not reached the point that it ought to have reached if the curve C had continued its linear decrease. According to the invention, the container must be considered as being empty after this time. According to the prior art, this level could not in general be determined accurately.

- 9) Please replace the paragraph at page 10, line 6, with the following:

At the base of the fixed drum 24 there is a line 34 followed by a valve 35 and a line 36, all allowing the liquid chemical product to be delivered to the equipment 37. In operation, it will always be preferable to maintain the pressure P_1 in the moving drum above the pressure P_2 in the fixed drum (high-level and low-level detection safety redundancy). The operation of the system illustrated in ~~figure~~ Figure 2 will be described below, under normal running conditions. In this case, the product is delivered by pressurizing the fixed drum 24; the filling of the fixed drum is triggered when the low level LL is reached. The product is transferred from the moving drum 10, without thereby interrupting the delivery via the line 34, the valve 35 and the line 36 to the equipment. The filling of the fixed drum 24 stops automatically as soon as the level HL is reached. It should be noted that the levels VLL and VHL are not used as detection levels for normal operation, but only as alarm levels requiring a particular emergency stop or emergency filling procedure.

- 10) Please replace the paragraph at page 10, line 28, with the following:

If the moving drum 10 no longer contains enough product to fill the fixed drum when filling is underway, the system for detecting the end of the moving drum 10, as explained with regard to ~~figure~~ Figure 1, makes it possible to trigger the operation of changing the moving drum. In order to detect this end of the moving drum, two parameters that can be modified by the operator may be used for this purpose: the time interval Δt between, for example, times t_1 and t_2 , or t_2 and t_3 , etc. (see ~~figure~~ Figure 1) and the weight change ΔP_i between two set times, it being possible for this weight change to be either an absolute change ΔP_i or relative change $\Delta P_i/P$ (expressed, as above, as a percentage of the initial weight), the operator having prerecorded, in the measurement and control system 40 of the balance, the minimum threshold value that the parameter ΔP_i or the parameter $\Delta P_i/P$ must not reach, detection of the value going below this level making it possible to generate an alarm signal, such as a display, a siren, etc.

- 11) Please replace the paragraph at page 11, line 36, with the following:

Of course, the system described in ~~figure~~ Figure 2 may be applicable in the case in which there are several fixed drums and a system of several moving drums, each moving drum having to be equipped with a weight measuring system as described in ~~figure~~ Figure 2. Thus, the system described in this ~~figure~~ Figure 2 makes it possible to overcome problems of drift in the balance and of the force exerted by the pipework for connecting the delivery system to the moving drum, which may significantly disturb a measurement that has to be accurate when the drum empties.

- 12) Please replace the paragraph at page 12, line 16, with the following:

At time $t = t_0$ corresponding to the detection of the low level LL in the fixed drum, the filling of the fixed drum and the monitoring of the liquid weight in the moving drum are started simultaneously, as described by the present invention. Until the high liquid level HL in the fixed drum is detected, the filling continues (the loop passing through point A in ~~figure~~ Figure 3), as does the monitoring of the weight in the moving drum. After several loops (as explained below) the situation is as at time $t = t_i$. The first operation is to store the weight P_i remaining in the moving drum. This operation is repeated at time $t_{i+1} = t_i + \Delta t$ when the remaining

weight P_{i+1} is also stored. The weight change $\Delta P_i = P_i - P_{i+1}$ during the time interval Δt_i is calculated and compared with a predetermined value K . A signal S_1 is generated if $\Delta P_i > K$ during the time interval Δt_i (moving drum available), in which case the weight monitoring is continued according to the loop shown in ~~figure~~ Figure 3 (iteration $i = i+1$). A signal S_2 is generated if $\Delta P_i \leq K$ during this same time interval Δt_i (moving drum empty).

- 13) Please add the following paragraph to page 14, line 16:

It will be understood that many additional changes in the details, materials, steps and arrangement of parts, which have been herein described in order to explain the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims. Thus, the present invention is not intended to be limited to the specific embodiments in the examples given above.

- 14) Please replace the subtitle at page 15, line 1, with the following text:

CLAIMS What is claimed is:

- 15) Please delete the existing abstract and replace it with the following subtitle and text:

Abstract of the Disclosure

A method and an apparatus for measuring the amount of liquid in a container, and for causing the liquid to flow from the container to a point of use. The weight of the container is measured at several time intervals to determine the weight change of the liquid contained within. When the weight change is less than a predetermined fraction of either the weight of container weight and/or of the liquid originally contained in the container, a signal is generated to indicate that the container may be empty.